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A New Myrmecophilous Ateluridae (Zygentoma) from Japan

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Abstract A new myrmecophilous thysanuran genus *Nipponatelurina* is established based on a new species *N. kurosai* (Zygentoma, Ateluridae) from the Honshu Island of Japan, and compared with the closest taxa.

Key words: Apterygota; Thysanura; Zygentoma; Ateluridae; *Nipponatelurina kurosai*; Japan.

Recently, Dr. Kazuyoshi KUROSA (Tokyo, Japan) kindly offered us the specimens of a quite interesting myrmecophilous thysanuran collected at Kobe, Honshu, Japan. They are considered to belong to a new species integrating a new genus, and here described under the name *Nipponatelurina kurosai* gen. et sp. nov.

The type specimens to be designated in this paper are deposited in the entomological collection of the Centro de Zoologia of the Instituto de Investigação Científica Tropical, Lisboa, Portugal (CZ in the text) and in R. MACHIDA's private collection (RM in the text).

Nipponatelurina gen. nov.

Female. Little to medium size Ateluridae (4–5 mm); Body ateluroid, not strongly convex dorsally; thorax much shorter than abdomen, a little wider than abdominal base. Body poorly sclerotized, devoid of hypodermal pigmentation. Scales of usual type, ovoid, with many thin rays which exceed not conspicuously the free border of scale; scales present along body and cephalic capsule, absent from legs except for coxae, cephalic appendages, stylets, cerci and terminal filament. Head free, with a few macrochaetae restricted to frontal area. Antennae short, without special features. Mandibles with well-developed incisive and molar areas. Maxillae typical; galea and lacinia almost of the same length; galea with two unequal apical cones; lacinia with an acute terminal tooth and a nearly acicular pra-

edistal tooth, pectinated process not surpassing apex of distal tooth; maxillary palp without special characteristics. Labium posterolaterally rounded; labial palp typical, its last article ovoid and with 6 apical papillae.

Pro-, meso- and metanotum scaly, macrochaetae restricted to the lateral margins. Tarsi with four articles; praetarsus complete, empodium unguiform; lateral claws with a pulvillum attaining less than half of claw length.

Urotergites I–IX with infralateral macrochaetae only, scaly. Urotergite X of usual shape; 1+1 strong macrochaetae on the posterolateral corners; inner margin of apical notch with 1–2 pairs of strong setae. Urosternite I glabrous; urosternite II with 1+1 close together vesicles with a few short setae; urosternites III–VII with 1+1 strong submedian and 1+1 thinner infralateral macrochaetae, besides a few tiny setae; abdominal sternite VII with a pair of well-developed pseudovesicles; a pair of stylets in each of segments VII–IX, well-developed, provided with a few dark spiniform setae and a denticulated apical spine. Subgenital plate wide, with marginal setulae. Ovipositor of usual type, provided with thin setae only. Cerci and terminal filament not specially shortened, without special features.

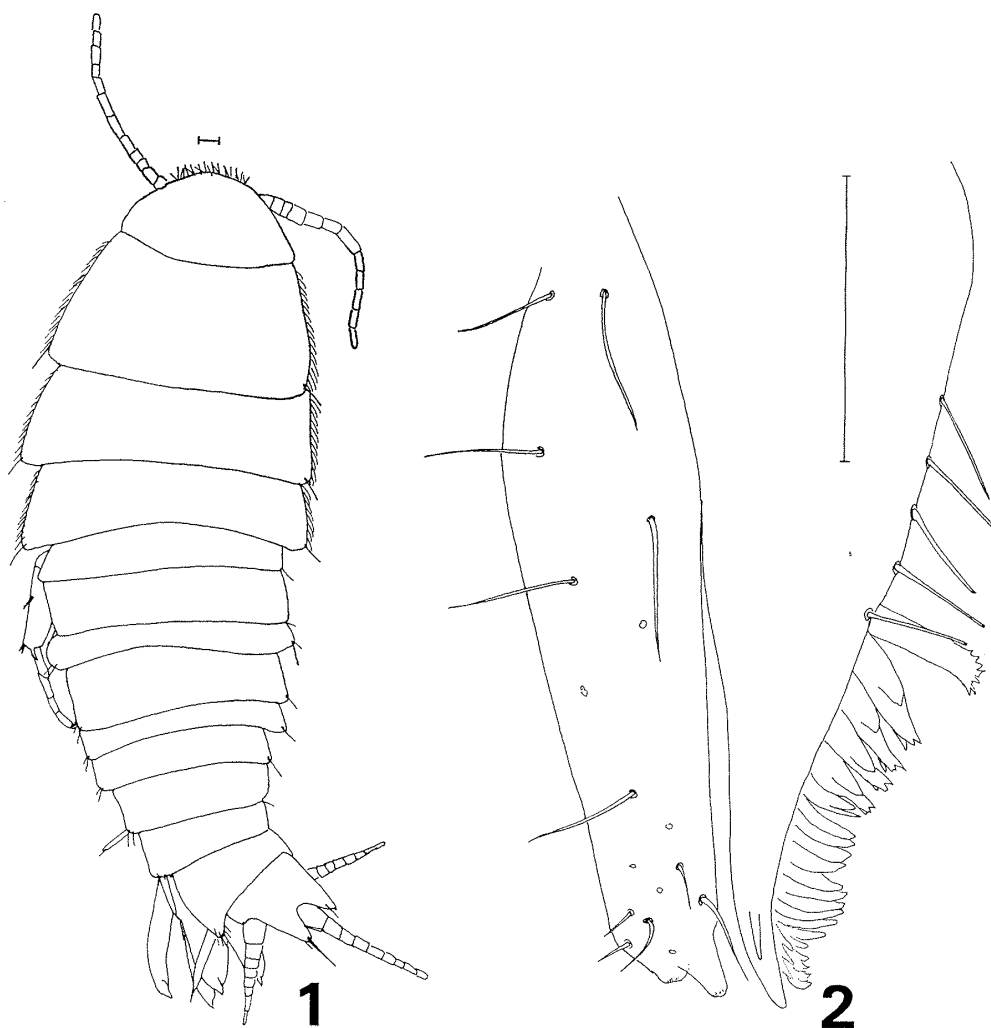
Male. Unknown.

Type species. *Nipponatelurina kurosai* sp. nov.

Discussion and Etymology. The new genus *Nipponatelurina* is a member of almost certainly a monophyletic group composed of about 20 genera distributed along the Oriental and Palaearctic Regions, sharing the 1+1 very close together submedian vesicles in the urosternite II; this group shares, further, the head which is largely exposed and scaly or scaly and setose, the strong tendencies to the onisciform body shape mainly in the male sex and to the nanism, and, in what the male is concerned (unknown in the new genus), the cerci and tergite X with pegs and the terminal filament without these ones.

Among this group widely distributed along the Oriental and Palaearctic Regions, the new genus *Nipponatelurina* and *Nipponatelura* UCHIDA present the easternmost geographical distribution (Japan), and *Proatelurina* PACLT the westernmost (Mediterranean Basin); and the new genus is nominated *Nipponatelurina*, being the closest to *Nipponatelura* under the geographical point of view. *Nipponatelurina*, *Nipponatelura* and *Proatelurina* are, besides the central European *Atelura* HEYDEN, the Palaearctic representatives of the Ateluridae.

From the features of praetarsus and small number of stylets, the new genus *Nipponatelurina* seems to be allied particularly to the monotypical *Proatelura* (SILVESTRI, 1916) distributed from China to the Solomon Islands, and to the also monotypical, perimediterranean *Proatelurina* (PACLT, 1963), as well as *Atelurodes* (SILVESTRI, 1916), with two described species, signalized from eastern India to the Bismark and Solomon Islands and *Nipponatelura* (UCHIDA, 1968) known by two species from Japan, *i.e.*, the Hachijo-jima and Amami-O-shima Islands (UCHIDA, 1949, 1960). From all of them, with the exception of *Proatelurina*, *Nipponatelurina* is easily distinguished by: the shape of empodium, more or less unguiformed and



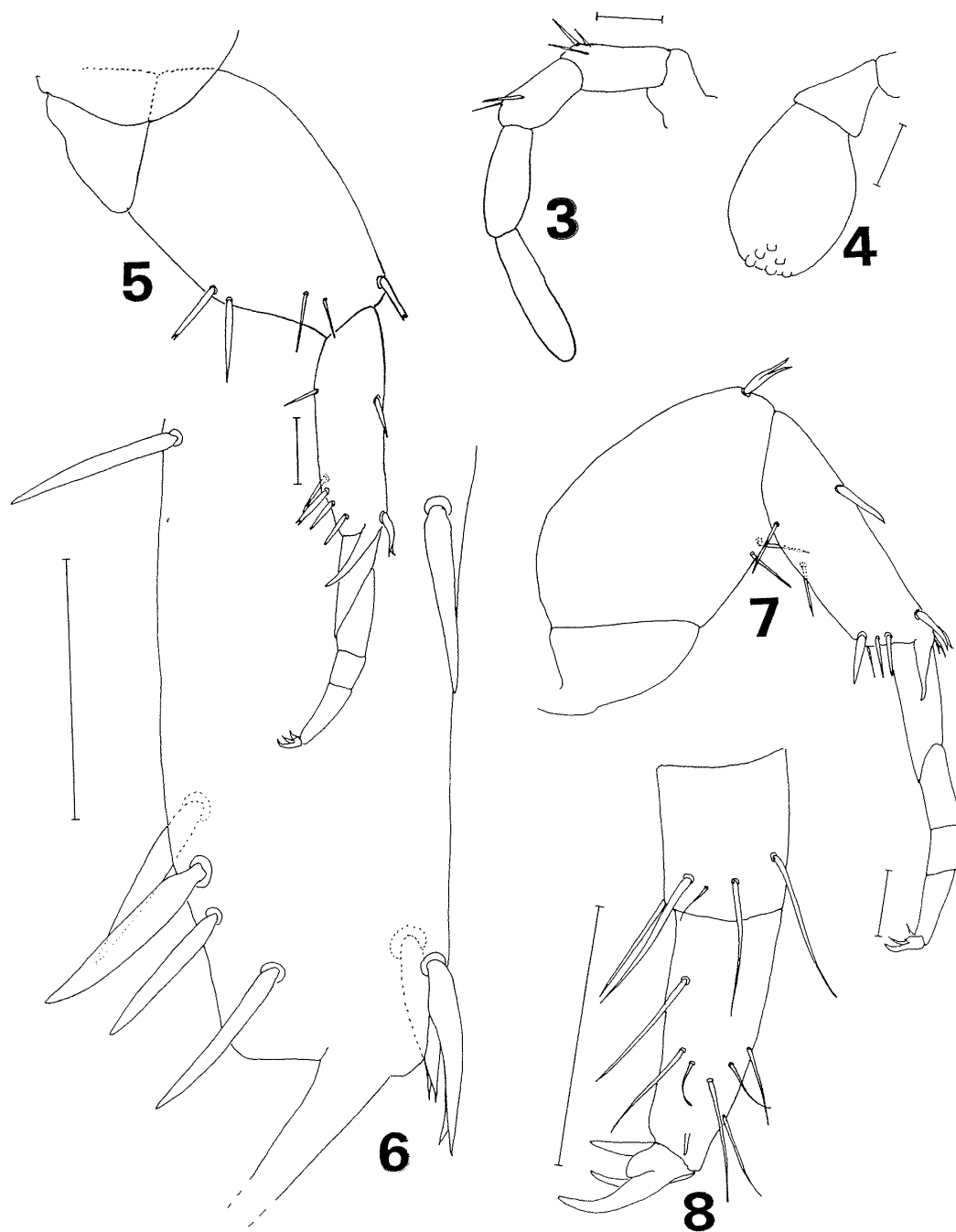
Figs. 1–2. *Nipponatelurina kurosai* gen. et sp. nov. — 1, Body, general aspect; 2, apex of maxilla. Scales: 0.1 mm.

delicate (*versus* flattened, leaflike and striated); the quite distinct subgenital plate; the inner margin of the Xth urotergite notch with 1–2 pairs of strong setae (*versus* devoid of chaetotaxy). Furthermore, *Atelurodes* is characterized by the occurrence of 5 pairs of stylets (segments V–IX), and *Nipponatelura* by 4 pairs (segments VI–IX).

***Nipponatelurina kurosai* sp. nov.**

[Japanese name: Kurosa-Arishimi]

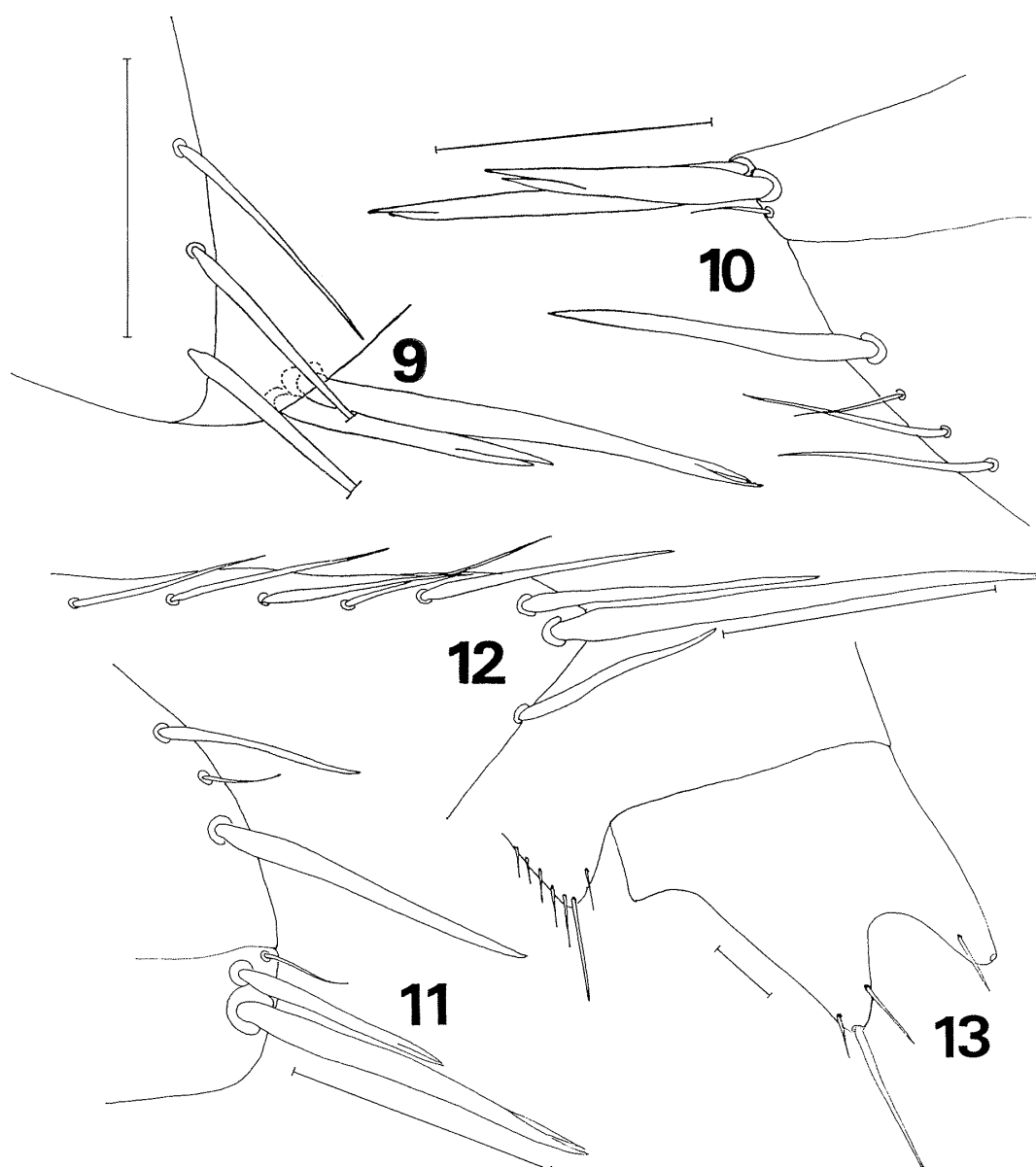
Examined material. JAPAN [Honshu]—Sumiyoshi, Higashi-Nada, Kobe, Hyogo Pref., 3/XI/1985, leg. K. KUROSA, from a nest of *Tetramorium caespitum* (LINNÉ), 1 ♀ holotype (CZ); same data, same host, 9 ♀♀ paratypes (CZ), 2 ♀♀ paratypes (RM); same data, from a nest of *Formica japonica* MOTSCHULSKY, 1 ♀



Figs. 3–8. *Nipponatelurina kurosai* gen. et sp. nov. — 3, Maxillary palp; 4, labial palp; 5, P I, general aspect; 6, *ibid.*, detail of tibial chaetotaxy; 7, P III, general aspect; 8, *ibid.*, praetarsus. Scales: 0.1 mm.

paratype (CZ).

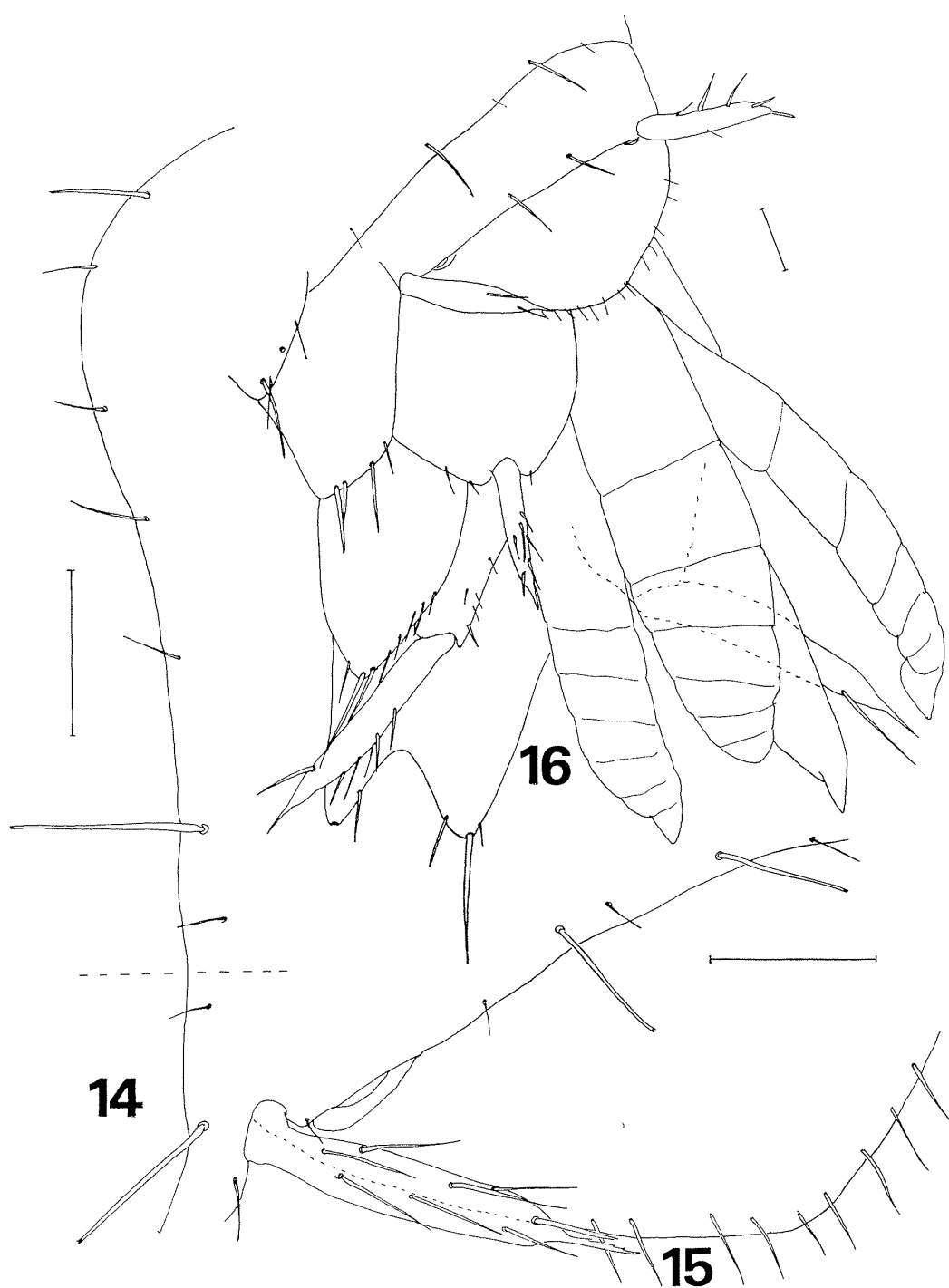
Female. Body length 3.5–4.5 mm; thorax length 1.3–1.7 mm; thorax width 1.3–1.5 mm; maximum antenna length 1.3 mm; cercus length 0.5–0.6 mm; maximum total length 4.9 mm.



Figs. 9–13. *Nipponatelurina kurosai* gen. et sp. nov. — 9, Urotergite III, infralateral setation; 10, urotergite VI, infralateral setation; 11, urotergite VIII, infralateral setation; 12, urotergite IX, infralateral ventral area; 13, urotergite X. Scales: 0.1 mm.

Body ateluroid, as in Fig. 1. Scale pattern uniform, golden yellowish; scales as in the generic description. Macrochaetae light brown, not specially robust; spines on legs stronger, light brown.

Head wider than long, large, scaly, with setae in frontal area only; a few minute thin cilia among abundant scales. Antennae typical, short, with about 14 articles, shorter than limit of thorax. Mandibles well-developed, as in the generic description. Maxillae as in Fig. 2; lacinia with acute apical tooth as long as pectinated



Figs. 14–16. *Nipponatelurina kurosai* gen. et sp. nov. — 14, Urosternite VI, posterior border; 15, subgenital plate and hind border of urosternite VII; 16, ventral distal area of abdomen. Scales: 0.1 mm.

process; galea attaining approximately the same level as lacinia, with two apical conules, one much more developed; maxillary palp with some spine-like setae in distal areas of second and third articles, its apical article about 1/3 longer than penultimate and 4 times longer than wide, cylindrical (Fig. 3). Labium with rounded posterolateral corners, typical; distal article of labial palp ovoid, longer than wide, with 6 usual papillae (Fig. 4).

Hind border of nota almost straight; nota scaly, provided with developed setae along lateral margins only; a few minute cilia, similar to those of cephalic capsule, widely scattered along hind border and on dorsal surface. Legs with some spini-form setae in femur and tibia, as in Figs. 5–7; praetarsus as in Fig. 8; empodium acute, clawlike; pulvilli conspicuous, although shorter than half the length of lateral claw.

Abdominal tergites scaly, macrochaetae of posterolateral area well-developed, deeply bifurcated; inner macrochaeta stronger and longer than outer one (Figs. 9–11); laterotergites with 2–3 short setae, the one closer to the infralateral group clearly more developed (longer and stouter) than the remainings: the innermost one the thinnest and shortest. Urotergite IX with posterolateral area (Fig. 12); the area provided with 1 apical macrochaeta and usually 6 shorter outer setae. Urotergite X with deep apical notch (Fig. 13); 1+1 strong macrochaetae on the posterolateral corners, 1–2 pairs of strong setae on inner margin between the corners; 0–1 similar seta on outer distal margin, close to the corner. Urosternites as in the generic description; urosternite II with 1+1 submedian short macrochaetae on hind margin between 1+1 submedian vesicles, the vesicles provided with 2–3 short setae; urosternites III–VI as in Fig. 14, with 1+1 submedian quite apart delicate macrochaetae, 1+1 short infralateral setae and a few intermediate thin cilia; urosternite VII as in Figs. 15–16, with a pair of well-developed pseudovesicles and a pair of stylets. Subgenital plate widely parabolic, with a row of marginal short and thin setae. A pair of stylets in each of segments VII–IX; those of coxites VIII similar to those of urosternite VII, those of coxites IX far larger. Ovipositor robust, attaining the same level of stylets IX (Fig. 16); gonapophyses without special features, with 7–9 articles, provided with thin setae only.

Cerci and terminal filament as in the generic description.

Male. Unknown.

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